



February 12, 2007

The Honorable Deborah Platt Majoras  
Chairman  
Federal Trade Commission  
Room H-135 (Annex B)  
600 Pennsylvania Avenue, NW  
Washington, DC 20580

RE: Broadband Connectivity Competition Policy Workshop-Comment, Project No. V07000

Dear Chairman Majoras:

Alcatel-Lucent respectfully submits these comments for consideration by the Federal Trade Commission in its Broadband Connectivity Workshop to be held on February 13-14, 2007.

Alcatel-Lucent would like to thank the FTC for addressing the issue of broadband connectivity, and Net Neutrality in particular. We believe that as an industry leader, we have the responsibility to approach this debate in a way that preserves the competitive nature of the telecommunications industry while also respecting the rights of consumers and the content and applications providers whose products help drive broadband deployment. These constituencies can and must be balanced in order to ensure that technological progress continues unabated for the benefit of society.

Over the course of its consideration, Net Neutrality has come to focus on a discussion of the appropriate public policies that should be applied to the management of public Internet access traffic. With respect to the public Internet, Alcatel-Lucent does not believe it is appropriate or timely for regulators and policy makers to adopt a broadband Internet access “nondiscrimination principle” (i.e. Net Neutrality). Such action would threaten the continued evolution of our communications infrastructure to next generation platforms, and deprive all stakeholders in the broadband marketplace of as-yet unforeseen opportunities created by compelling new IP-based technologies. The perceived harms that Net Neutrality advocates commonly rely on in support of the need for Net Neutrality regulation, and more specifically, the ability of broadband service providers to foist those harms upon content and applications providers and consumers, simply do not exist today. In the public Internet space, Net Neutrality remains a solution in search of a problem.

As a result, Alcatel-Lucent continues to support the “Connectivity Principles” adopted by the Telecommunications Industry Association<sup>1</sup>, which serve as the foundation for the Federal

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<sup>1</sup>[http://www.tiaonline.org/business/media/press\\_releases/2006/documents/TIABroadbandInternetAccessConnectivityPrinciples.pdf](http://www.tiaonline.org/business/media/press_releases/2006/documents/TIABroadbandInternetAccessConnectivityPrinciples.pdf)

Communications Commission's (FCC) Broadband Policy Statement issued in August, 2005.<sup>2</sup> Our industry's principles provide effective protections for all stakeholders in the broadband market, while ensuring innovation and competition continue to flourish.

## **I. Introducing Alcatel-Lucent**

Alcatel-Lucent is the world's largest telecommunications equipment manufacturer, with almost 80,000 employees located in 130 countries. Alcatel-Lucent is a leader in global research and development capabilities, leveraging the strength of Bell Labs and the research and innovation made possible by our 23,000 employees in the R&D field alone. Alcatel-Lucent's combined focus on global R&D and practical technologies and applications has made our company the largest wireline manufacturer in the world, the third largest wireless manufacturer, among the top three in applications and services, and the leading provider of enterprise communications solutions in Europe.

Alcatel-Lucent's leadership in broadband access technologies comes in many different forms, including Digital Subscriber Line (DSL) and Internet Protocol Television (IPTV), Passive Optical Networks (PON), 3G, WiMAX, and numerous other cutting-edge technologies. Alcatel-Lucent technology powers millions of broadband access connections throughout the world, and we are currently deploying IPTV facilities in dozens of countries, including the United States, where we are assisting AT&T in assembling its access network for its U-Verse IPTV platform. Alcatel-Lucent is also pleased to be working with Verizon in the deployment of its FiOS network.

## **II. Network management to ensure Quality of Service (QoS) plays a legitimate and needed role in today's broadband marketplace**

The Internet has become a major part of American life for consumers and enterprises alike, and is increasingly a critical component of our nation's economy. With our increasing reliance on the Internet comes increasing applicability of the Internet to activities of all kinds. Our common interest in using the Internet for social and business interactions has driven American consumers and businesses to pursue ever faster, untethered connections that provide superior means of using this great resource. As a result, Americans continue to rapidly transition from dial-up to broadband Internet access. As formerly distinct communications platforms converge into IP multimedia platforms, Americans have increasing access to content and applications formerly reserved for one distinct platform or another. Content and applications are driving broadband deployment. Broadband deployment is driving the increasing availability and creation of content and applications. A new cycle of innovation in our communications marketplace has only just begun.

Innovation in today's marketplace is not without its challenges, however. As Broadband service providers offer increasing amounts of bandwidth in their networks to accommodate content and applications, content and applications swallow up the bandwidth that is available. In the future,

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<sup>2</sup> *In the Matter of: Appropriate Framework for Broadband Access To The Internet Over Wireline Facilities*, Docket No. FCC-05-151, 20 F.C.C.R. 14986 ¶ 2 (Aug. 5, 2005), available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-05-151A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf).

we may arrive at a point in innovation where we no longer need to discuss specific concepts such as “bandwidth,” but that day has yet to arrive. In the process of transitioning from a dial-up world to the new frontier of limitless communications, which includes tens of billions of dollars in capital expenditures, competing demands on today’s broadband infrastructure necessarily must be balanced to allow service providers to manage their networks in a way that ensures QoS, security, and the ability to deliver new and innovative products and services successfully.

Therefore, it is important that our nation’s broadband policy create an environment where infrastructure improvement and network management are a compliment to next-generation applications and services rather than a regulation-inspired choke point in the network.

### ***The Net Neutrality debate today***

Our nation’s dialogue over how broadband service providers should be permitted to manage their networks to ensure QoS began with “FUD”: fear, uncertainty, and doubt. Proponents of Net Neutrality argue that the aggressive use of QoS will enable broadband service providers to “charge” content and applications providers for access to their networks, or to mandate the social sharing of the costs of broadband investments among all the stakeholders in the broadband marketplace. However, QoS is simply technology that is already in widespread use today. In fact, QoS already plays a vital role in ensuring consumers who purchase a service can actually receive it and at the quality that they expect.

When considering technologies that empower QoS, it is critical to understand the various roles they can play in broadband networks. QoS is currently used to offer private applications alongside public Internet access. It is used to ensure applications, such as IPTV, virtual private network or other services work as advertised. Lastly, and importantly, it is used to ensure that emergency 911 calls can access the network as required. In theory, QoS could *hypothetically* be used to manage access to content on the public Internet. It is this last issue that is the crux of the Net Neutrality debate today.

Recent events at the FCC and in Congress suggest that regulators and policy makers increasingly understand that QoS has an appropriate role to play in broadband networks, especially concerning the provision of private services such as IPTV. The debate has narrowed to a discussion of whether to apply Net Neutrality to public Internet access services.

The FCC’s AT&T/BellSouth merger Order includes a Net Neutrality condition that applies only to AT&T’s DSL service, a public Internet access service, and expressly exempts the application of the Net Neutrality condition to IPTV and enterprise services.<sup>3</sup> Senators Dorgan and Snowe reintroduced Net Neutrality legislation in the Senate earlier this year, and their legislation similarly only applies Net Neutrality to public Internet access.<sup>4</sup> Alcatel-Lucent sees the narrower focus of these Net Neutrality concepts as a positive sign of a maturing discussion, but one that requires more study and contemplation.

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<sup>3</sup> *FCC Approves Merger of AT&T Inc. and BellSouth Corporation*, December 29, 2006, available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-269275A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-269275A1.pdf)

<sup>4</sup> S.215, the Internet Freedom Preservation Act; Introduced by Senator Byron Dorgan on January 9, 2007, 110<sup>th</sup> Congress.

Just as network management to ensure QoS plays a critical role for value-added, subscription-based private services such as IPTV, QoS technologies could play an equally critical role in the public Internet's ability to keep up with the demands of content and applications in an increasingly bandwidth-intensive communications marketplace. Adopting Net Neutrality regulations, even when limited in applicability to the public Internet, would only forestall continued innovation in critical technologies that may revolutionize public Internet access in positive ways. Since QoS for public Internet traffic does not and cannot take place today, policy makers should permit innovations in network management to continue unimpeded.

### ***QoS technologies could dramatically improve today's public Internet access***

QoS, is not used for general public Internet access today, but it could be employed to revolutionize and improve Internet access and in particular the ability of consumers to use content and applications over the public Internet.

QoS could be employed for the purpose of enabling consumers to access content and applications via the Internet that they may not be able to do in a reliable manner today. For instance, a consumer subscribing to an Internet-based IPTV service would not be pleased if their television set went dark every time their Internet-based VoIP phone rang. Nor would they be pleased if their video disappeared when someone else in the house accessed a static blog site. QoS can be used to enable consumers to enjoy multiple applications delivered over the Internet simultaneously, by ensuring that the services requiring greater consistency in packet transmission receive it. In contrast to video, web page browsing or checking e-mail requires less consistency in transmission than image-intensive applications, and delayed or dropped packets can simply be re-sent virtually at the network's convenience without any noticeable gap in service or responsiveness from the consumer's perspective. This ability to work within the confines of a somewhat unreliable network is inherent with the Internet today. It is this same ability that enables online video providers to offer their content today.

To say that "all packets should be treated the same," as Net Neutrality advocates like to suggest, sounds noble in principle. However, it is wholly impractical given the nature of the Internet today. To do so would require substantial changes in the Internet's design, standardization of QoS policies between network operators that hardly exist today, and implementation of some sort of vendor-agnostic, nationwide monitoring system. Major changes in the business side of the Internet must first take place in order for QoS to be applied to the nationwide public Internet in the future.

In short, QoS works well within the bounds of a controlled environment (e.g. a service provider's own network) and on end-to-end private networks, but QoS is largely managed today using statistical traffic engineering – not by marking services with a priority scheme, but by providing enough capacity (bandwidth) in networks to avoid significant congestion, even though QoS mechanisms have long existed. However, continual expansion of bandwidth to avoid congestion is wholly impractical in wireline and wireless access networks due to the time it takes to upgrade them, and incrementally higher costs per data bit due to substantially less ability to leverage statistical usage.

As mentioned, industry standards would have to be adopted that put in place common policies for the labeling and prioritization of data packets. Some proponents of Net Neutrality argue that giving service providers the ability to prioritize packets of data transmitted via the public Internet will allow them to choose winners and losers among application and content providers.

However, such a view fails to consider how the Internet actually works. The vast majority of Internet traffic must traverse the networks of numerous broadband service providers. This means that in order to favor the traffic of Service A over Service B during its entire trip through the Internet, each service provider and backbone network would have to prioritize and label packets in exactly the same way – a scenario that does not exist today. The idea that a service provider could maintain priority routing for its “preferred data packets” between a user in Washington, DC and Los Angeles, CA is not possible absent a comprehensive agreement between all network service providers to treat and identify data packets based on a common standard not currently in existence. Absent such developments, the data would almost certainly change hands at least once, likely stripping it of any prioritization it might have enjoyed inside the network of a sole provider.

Lastly, even if all broadband service providers obeyed a universal packet labeling and prioritization scheme, they would all have to offer at least a common minimum in bandwidth that permits universal prioritization to work on a consistent basis. The current “best efforts” Internet only permits a packet of data to arrive at its destination as fast as the slowest network over which it traverses. So if a consumer subscribes to an Internet-based IPTV service using a broadband Internet access connection of 100 megabits per second (Mb/s), and the packets representing the IPTV service flow across a network operating at 1 Mb/s, that IPTV service will not be watchable through the 100 Mb/s connection.

The current state of broadband connectivity in the marketplace is not presently at a consistently high level of bandwidth that would be required for a universal prioritization scheme to work, even if it existed. And despite all of the industry-leading products Alcatel-Lucent manufactures, our nation and the broader world simply have not yet reached a level of broadband and bandwidth deployment that is sufficiently high, however high that may be, to eliminate all bottlenecks in the collection of networks we call the Internet. It is precisely for this reason that QoS is necessary and valuable. Until end-to-end infrastructure is made more “future proof,” if indeed that can ever occur, QoS technologies can and should be employed to ensure consumers get what they pay for, thereby allowing service, content and applications providers to recoup their investment in their respective products.

### **III. Regulators must resist calls for statutory and regulatory action on Net Neutrality in the absence of a problem**

Having addressed the factors that need to be accounted for in assessing the impact of QoS on public Internet traffic, and the fact that our communications infrastructure and broadband service providers have clearly not arrived at the point where QoS for public Internet access is a concern, Alcatel-Lucent strongly encourages policy makers to resist continued calls for action on Net Neutrality.



Alcatel-Lucent recognizes the ongoing education of policy makers and regulators with respect to these challenging issues. Having made the informed connection between the importance of QoS and private applications and services made possible by next generation networks, Alcatel-Lucent remains hopeful that through continuing discussion, not premature statutory and regulatory action, policy makers and regulators will come to appreciate that there is no need to act precipitously at this time. The use of QoS for public Internet access traffic is not something on the immediate horizon, but can certainly improve the Internet experience for consumers and content and applications providers in the future. But Net Neutrality regulations and laws threaten to derail the continued development of QoS in the marketplace that could dramatically improve the very Internet that such proposals seek to protect.

Sincerely,

Cindy Christy  
President  
Alcatel-Lucent North America

cc:

Commissioner Harbour  
Commissioner Leibowitz  
Commissioner Kovacic  
Commissioner Rosch